

WHAT IS CLAIMED IS:

1. A method for determining a characteristic of a microorganism, wherein said method comprises the steps of:
  - (a) concentrating said microorganism which comprises the steps of:
    - (i) adding a sample containing said microorganism to a centrifuge tube;
    - (ii) centrifuging said sample in said centrifuge tube to concentrate said microorganism, said centrifuge tube comprising an upper region, a middle region and a lower region wherein an inner diameter of said upper region is larger than an inner diameter of said middle region; and, either an inner diameter of said middle region is larger than an inner diameter of said lower region or the inner diameter of the middle region and the lower region are capable of holding an air bubble between aqueous liquids in the middle region and the lower region;
  - (b) extracting nucleic acid from said concentrated microorganism to produce extracted nucleic acids;
  - (c) treating nucleic acid derived from said concentrated microorganism with one or more restriction enzymes to produce fragments of nucleic acid; and
  - (d) determining one or more of the following; (1) the number of said fragments of nucleic acid, (2) the lengths of at least one of said fragments of nucleic acid, (3) the mass of at least one of said fragments of nucleic acid or (4) at least a partial sequence of at least one of said fragments of nucleic acid.
2. The method of claim 1, wherein said microorganism is in a biological sample and is not grown before said sample is added to the centrifuge tube.
3. The method of claim 1, wherein said extracted nucleic acids contain at least one of single stranded DNA, double stranded DNA, single stranded RNA or double stranded RNA.
4. The method of claim 1 further comprising:
  - staining at least one of said extracted nucleic acids, at least one of said fragments of nucleic acid or nucleic acids inside said microorganism.

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5. The method of claim 1 further comprising:  
immobilizing said extracted nucleic acids or said nucleic acid derived from said concentrated microorganism on a solid support to produce immobilized nucleic acid, and  
treating said immobilized nucleic acid with one or more restriction enzymes to produce at least one fragment of nucleic acid.
6. The method of claim 1, wherein said nucleic acid from said concentrated microorganism is not amplified before said treating with one or more restriction enzymes.
7. A method for determining the identity of a microorganism in a biological sample, wherein said method comprises the steps of:  
(a) determining the characteristic of a microorganism according to the method of claim 1; and  
(b) comparing said characteristic of a microorganism to the same characteristics of known microorganisms, wherein a match of the characteristic of said microorganism in said biological sample with said characteristic of a known microorganism identifies the microorganism of said biological sample as being that of said known microorganism with an identical characteristic as that of the microorganism of said biological sample.
8. The method of claim 7, wherein said microorganism is in a biological sample and is not grown before said sample is added to the centrifuge tube.
9. The method of claim 7, wherein said extracted nucleic acids contain at least one of single stranded DNA, double stranded DNA, single stranded RNA or double stranded RNA.
10. The method of claim 7 further comprising:  
staining at least one of said extracted nucleic acids, at least one of said fragments of nucleic acid or nucleic acids inside said microorganism.
11. The method of claim 7 further comprising:  
immobilizing said extracted nucleic acids or said nucleic acid derived from said concentrated microorganism on a solid support to produce immobilized nucleic acid, and

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treating said immobilized nucleic acid with one or more restriction enzymes to produce at least one fragment of nucleic acid.

12. The method of claim 7, wherein said nucleic acid from said concentrated microorganism is not amplified before said treating with one or more restriction enzymes.

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